City of Brunswick Water/Sewer Infrastructure Projects –
As of April 2021

Listed below are water and sewer infrastructure projects currently in planning or underway in the City of Brunswick:

- **Yourtee Springs:** Water source owned by the City of Brunswick in southern Washington County off Route 67 and provides 20% of the City's potable water. This is a $1.3 million project to improve Yourtee Springs and bring it back on-line as a source of drinking water for portions of Knoxville and the western side of Brunswick. Maryland Department of Environment ordered the spring's shutdown in 2018 due to repeated groundwater infiltration. A contract was awarded to Callas Contractors, Hagerstown, in October 2020 with completion anticipated by winter of 2022.

Water from Yourtee Springs is less expensive to produce than water sourced from the Potomac River. The City tries to utilize spring water for as many customers as possible to keep treatment costs low for all residents. While Yourtee Springs is offline, the City has noticed an increase in discolored water. This is because when Yourtee Springs was taken offline, the flow of water in those lines was reversed (i.e. instead of water from Yourtee flowing east towards Brunswick, Potomac River water was pushed west towards Washington County). This reserve flow can disrupt tuberculation in pipes and cause discolored water. *(Picture above shows beginning stages of construction at Yourtee Springs project)*

- **West B Street Water Line Replacement:** This $1 million replacement of the main distribution line provides drinking water to the west end of the City. Its aging condition with tuberculation and frequent leaks causes poor hydraulics resulting in low water pressure and volume. *(Picture at right shows a tuberculated water line)*

- **Inflow and Infiltration (I&I):** A $2.1 million Inflow and infiltration (I&I) correction project will be completed in FY2021. I&I is defined as ground water and stormwater that enters a sewer system. In the City of Brunswick, I&I problems mainly exist in the collections main lines and residential laterals to homes. The average daily flow at the wastewater treatment plant is 650,000 gallons. However, flows can triple during significant rain events because I&I enters the

sewer system and flows to the treatment plant. The additional flows caused by I&I play a huge role in the rising cost of wastewater treatment during storm events. This I&I correction project is one step in addressing the City's I&I issues. Additionally, Public Works staff is actively identifying problem areas throughout the City by deploying portable flow meters to track I&I during rain events.

- **Water Meter Replacement Project:** Over $1 million has been invested since 2019 to replace aging water meters to new ARM meter technology that allows for more accurate readings, data logging indicating daily use, and more often meter readings to identify leaks sooner. Prior to installing the new meters, manual readings were taken every three months over a period of several week. Once switching to new meters, the process is completed in a fraction of the time, allowing for more accurate readings and quicker identification of potential leaks. When leaks are identified sooner, they can be fixed sooner, saving the customer and the City money.

- **Reservoir Project:** The current site houses two water towers containing storage for 1.25 million gallons and a 3 million gallon reservoir. City growth requires new infrastructure for water storage. The demolition of the 100-year old reservoir and installation of a new 1.25 million gallon water tower will provide for the increasing demand. A $500,000 State Capital Grant was awarded to the City for site improvements. *(Picture at right shows Brunswick water towers)*

- **Wastewater Treatment Carbon Source Study:** In October 2020, the Wastewater Department began a study to find a new carbon source used in the treatment process. The goal of the study is to reduce operating costs, meet the future requirements of the City, and provide treatment that surpasses environmental regulations. The study found that acetic acid has the potential to be a cost-effective solution that can reduce future chemical and energy usage by an estimated $15,000 to $20,000 annually. Additionally, because acetic acid is compatible with existing infrastructure, the City will save over $100,000 on future engineering and construction costs.

- **Wastewater Treatment Process Control Upgrades:** The Wastewater Department is in the early research & planning phase of upgrading the process controls at the treatment plant. Enhanced automation will play a key role in meeting the future demands of the City and help improve water quality by optimizing the treatment process. The goal of the upgrades is to reduce operational costs by incorporating technology that decreases equipment run times and lower

chemical usage by supplying the optimum dosage. Potential upgrades may include ammonia and nitrate probes that improve nitrogen reduction by enhancing aeration and the integration of analyzers that automate the chemical injection in the treatment process. Future annual chemical and energy savings is projected to exceed $25,000.

- **Continued Testing and Sampling:** Staff is currently investigating total dissolved solids removal systems for water storage, and at the water treatment plant. TDS is caused by oxidation. The City oxidizes raw water with potassium permanganate and the TDS created by this are removed by clarifier media and filtration. Once chlorine is introduced that acts as a disinfectant as well as an oxidizer. It reacts to metals such as Iron and Manganese that naturally occur in the water, potentially resulting in discolored water if levels are high. Staff has instituted a daily check of TDS on finished water and system water. Staff is researching a method to remove TDS without having to filter the water using aeration.